ØLTRONIX

OWNER'S MANUAL

REGULATED POWER SUPPLY

STABPAC 18

THIS SPECIFICATION IS APPROVED
FOR USE IN THE CALIBRATION OF
COMPANY INSTRUMENTS.
9
CALIBRATION DEPARTMENT
DATE: 16.5.83
OE FACILITIES
CORPORATION, STEVENAGE

Serial No .....

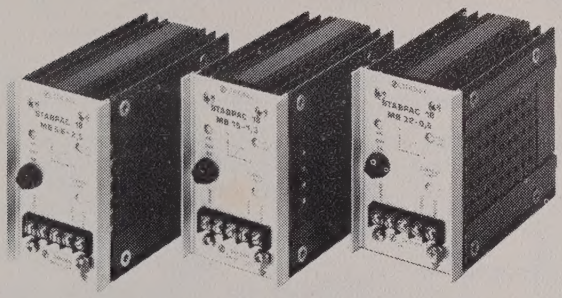
MP MASTER
MA23777

ØLTRONIX

STABPAC 18
MB 5/6 to 120

UIL-1(6)
1977-03-28

USERS INSTRUCTIONAL LEAFLET



RATING DATA [1])

MODEL	VOLTAGE/CURRENT RANGE U_{ex} (V) / I_{exm} (A)	REMARKS
MB 5/6 - 2,5	5V/2,5A to 6V/2,5A	Constant
MB 8 - 1,6	4V/1A to 8V/1,6A	Lineary increas-
MB 15 - 1,3	10V/1A to 15V/1,3A	ing current from
MB 32 - 0,6	20V/0,45A to 32V/0,6A	lower to higher
MB 60 - 0,3	40V/0,25A to 60V/0,3A	voltage values.
MB 120 - 0,14	80V/0,1A to 120V/0,14A	(See Output Chart)

Source voltage	U_S	220V ±10%, 240V ±10%[2]), 48-63Hz
Ambient temperature operating	t_{amb}	0^oC to 60^oC

PERFORMANCE RATING [1]) (Data subject to Change)

Source current, max	I_{Sm}	$0.15A_{rms}$ to $0.19A_{rms}$, see Circuit Diagram!
Load effect (load regulation) I_{ex} = 0-100%	U_{erL}	<5mV

Source effect (line regulation) $U_{Snom} = U_S \pm 10\%$	U_{ers}	<1mV or 0,01%
Temperature coefficient t_{amb}=0-60°C	α	<0,01%°C^{-1}
PARD (ripple and noise) f_B=20Hz-20MHz	U_{PARD}	<0,5mV$_{rms}$ or 2mV$_{pp}$
Drift (stability) τ=8h, f_B=0-20Hz	U_{erD}	0,05%
Load transient recovery time I_{ex}=0-100% Trans. rec. band=±50mV	τ_R	<50µs
Setting range [3]	U/I	0-1,1 U_{ex}nom/0,33-1,05 I_{exm}
Remote Resistance Programming	R_{Pconst}	270Ω/V
Voltage Programming	U_{const}	1V/V
Current Limit region at U_{ex}=min	I_{CL}	0,33 to 1,05 I_{exm}
Short circuit current	I_{SC}	0,33 I_{exm}
Reverse current protection max	I_{Rm}	1A
Reverse voltage protection max	U_{Rm}	1V (One diode forward voltage drop)
Isolation voltage, max on output terminals relative to the chassis	U_{isol}	±500V
Insulating resistance, min (U_{test}=500V)	R_{insul}	>100MΩ
Transformer OTP,automatic	t_{OTP}	110°C
Storage temperature	t_{stor}	-40°C to 85°C
Overall dimensions	height width depth	113mm 71mm 148mm
Mass	m	1,5 kg

[1]) Rating Data and Performance Ratings are expressed in accordance with international recommendations, notably IEC-478.

[2]) Connected for U_{Snom}=240V on order or changed at Service Center.

[3]) See Output Chart.

To make the best use of your STABPAC 18, follow these instructions!

MAINS (Figure 1)

New units are connected for 220V, 50 Hz mains supply at the factory. The mains cable shall be connected to the three flat tabs (2,8 x 0,5 mm) at the rear of the unit.
Warning: connect ground tag first and disconnect it last.
Stabpac units have no mains switch and are turned on and off generally with the principal equipment switch.
However an automatic thermal cut-out in the transformer protects the unit against excessive heat.
For 220V/240V mains voltage tap-changing, see Service Instruction STP18-1.

Figure 1

VOLTAGE ADJUSTMENT (Figure 2)

The output voltage can be set to any value within the nominal range by means of the "VOLT adj"-potentiometer on the frontpanel.

CURRENT LIMIT (Figure 2)

The maximum limiting current "a" on the foldback curve can be adjusted downwards by the "CURRENT LIMIT a"- potentiometer on the front panel.

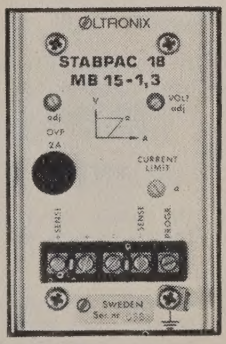


Figure 2

CURRENT RETURN FUSE (Figure 2)

There is a protective fuse in the minus-lead. If the fuse is blown it should be replaced by a new one carrying the same rating as indicated on the front panel.

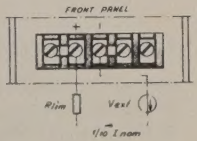


Figure 3

OVERVOLTAGE PROTECTION - OVP (Figures 3 and 4)

Model MB 5/6 has an overvoltage protection as standard, this feature being optional on other models.

The OVP is factory adjusted to 10% or at least 1.5V above the maximum nominal output voltage. This value can be set to within the voltage range by the "adj OVP"-potentiometer on the front panel.

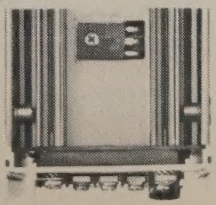


Figure 4

For a voltage exceeding this range, connect an external power supply to the output terminal and limit its output current to 10 % of the maximum current of the STABPAC 18. Set the external power supply to the desired voltage. Adjust the "adj OVP"-potentiometer to the limit where it crowbars the external supply. To add OVP on other models, remove the cover lid on the lower extrusion. Introduce a SCR (part no. H503966) in the SCR-socket with the insulator placed underneath the SCR. Tighten the SCR to the chassis with the tapping screws.

WARNING!

In the units without OVP-option the "adj OVP" potentiometer has to be left in the full clockwise position.

LOAD CONNECTION (Figure 5)

The output terminals are floating with respect to the chassis and may be used at any level within ±500V.

Connect your load to the "+"- and "-"-terminals on the front panel, verify that the sense-links remain in contact with the terminals.

If desirable, compensate against conductor inductance with a capacitor across the load.

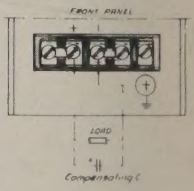


Figure 5

REMOTE SENSING (Figure 6)

Losses in load conductors can be compensated for by using remote sensing. Voltage drops of up to several volts may be accepted by the regulating circuit, but normal practise is to limit them to 0,5 volt on each load conductor.
Remove the sense-links and connect wires from the "+SENSE"- and "-SENSE" -terminals to the load. Twist the wires with the load conductors.

Compensating capacitor across the load might be useful.

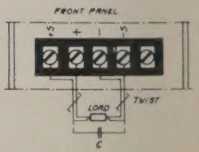


Figure 6

REMOTE PROGRAMMING (Figure 7)

With resistance control:

The unit is externally programmable. The remote resistance programming is 270Ω/V.

To maintain the specifications of the unit, the resistor programming shall conform to: ± 1%, ±50μp and >1/2 W.

Adjust the output voltage to its maximum value (the "volt-adj" potentiometer turned fully CW). Remove the "-SENSE"-link and insert the resistor programming between the "PROGR"-terminal and the "-"-terminal, or the negative side on the load when remote sensing is used. Place a 0.68μF capacitor in parallel with the resistor to prevent noise and ripple.

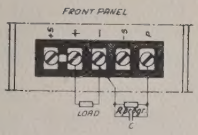


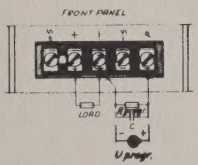
Figure 7

With voltage control:

The Stabpac unit can also be programmed with an externally connected input voltage. The out-put voltage change will maintain a one-to-one ratio with the programming input voltage.

The programming supply must have a reverse current capability of 4mA.

Adjust the output voltage to its minimum value (the "volt-adj" potentiometer turned fully CCW). Remove the "-SENSE"-link and connect the programming supply between the "PROGR"-terminal and the "-"-terminal, or the negative side on the load when remote sensing is used.



Important! The unit is programmable below the nominal range, but the output current is restricted by the foldback curve. It falls towards about 1/3 of the maximum current at zero voltage.

PARALLEL OPERATION OF UNITS

Two or more units can be used in parallel to obtain more current. Due to the "hard to set equal" probability, a slight voltage step occurs as unit after unit feeds current.

By Master-Slave operation the current is fed evenly from the units (see Service Instruction STP18-2).

SERIES OPERATION OF UNITS (Figure 8)

Two or more units may be used in series, up to a maximum sum which depends on the isolation limitation to the chassis of 500V. If any part of the load-line falls outside the combined rating curves let the voltage level to be established before the units are loaded.

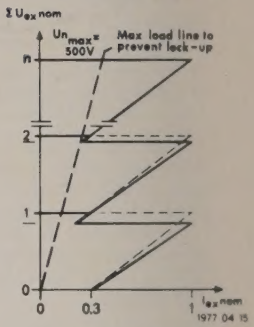


Figure 8

COMBINATION OF OPERATIONAL MODES

Any form of combination of operational modes is possible, provided each individual instruction is followed.

MOUNTING (Figure 9)

This unit is designed to be mounted in the upright position, in all cases of normal convection cooling. The unit is provided with fixed M4-nuts on the sides and slots for either M4- or B8-tappingscrews. When the slots are used, the screws shall penetrate the slots to at least 12 mm for secure fixing. The unit can also be mounted in the STABRAC C, a crate specially designed to house STABPAC-units.

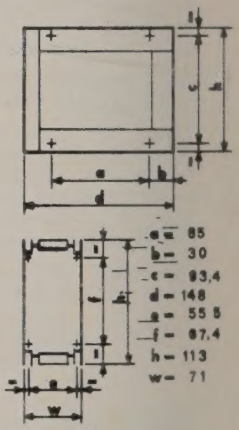
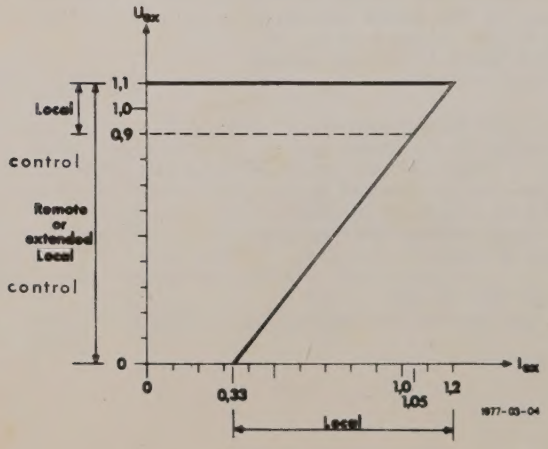
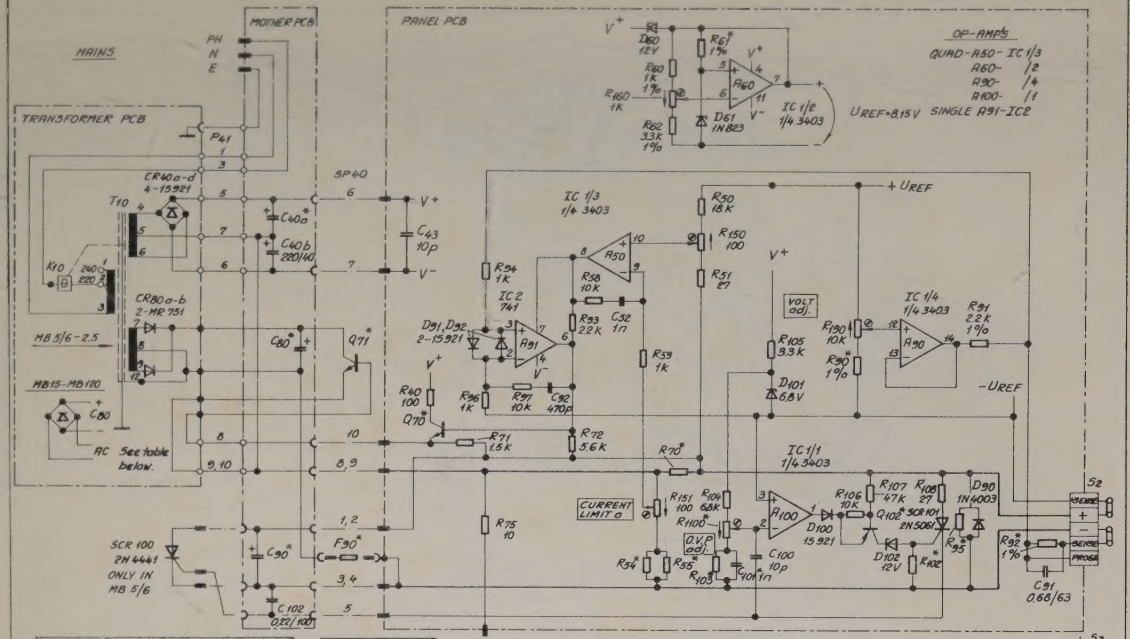


Figure 9



OUTPUT CHART



MODEL	T10	TRANSFORMER TAPS
MB5/6-2.5	T 273	See figure
MB8 - 16	T 274	-"-
MB15 - 1.3	-"-	7 8-9 10
MB32-0.6	T 275	7-8
MB60-0.3	T 276	7-9 8-10
MB120-0.14	-"-	7 8-9 10

TRANSFORMER TAPS ON MB 8-1.6

T-274

CR80a-b 2-MR501

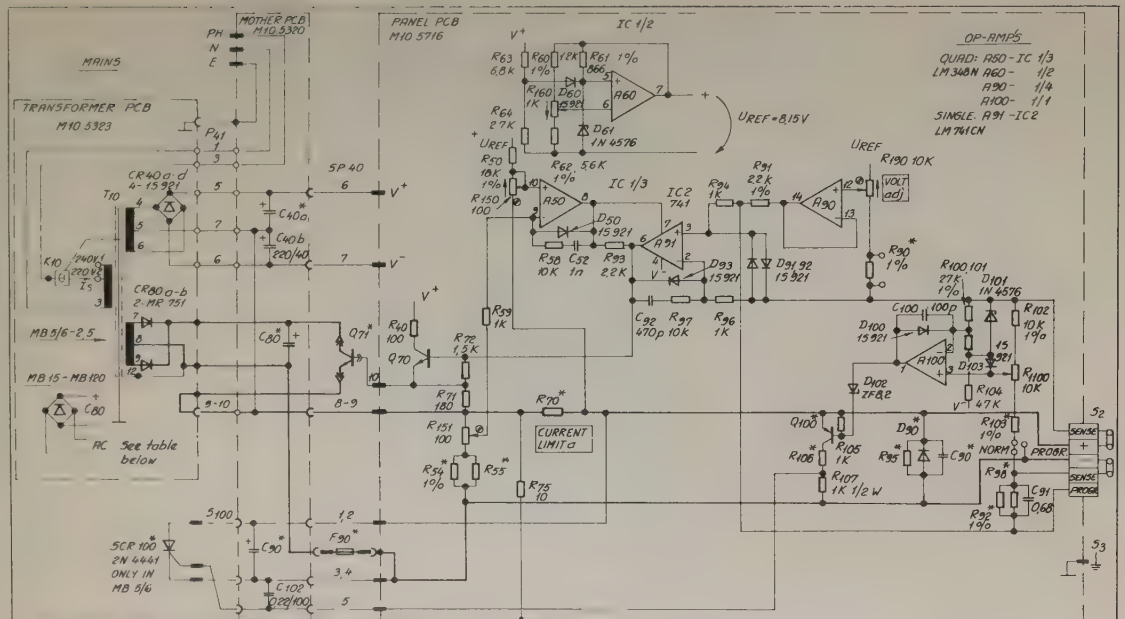
N.B. ALL RESISTOR-VALUES IN OHMS UNLESS OTHERWISE SPEC.
ALL CAPACITOR-VALUES IN µ F/V UNLESS OTHERWISE SPEC.
* SEE COMPONENTS LIST

MODEL	MATERIAL	FINISH
OLTRONIX	STABPAC 18 MB 5/6 - 120 version A	PART NO. 281 - 73 - 1 SCALE DR 76.11.19 Sc/BB APPD 76.11.25 Sc REV

COMP. \ MODEL	MB5/6-2,5	MB8-1,6	MB15-1,3	MB32-0,6	MB60-0,3	MB120-0,14
C40a	470µF/40V	220µF/40V	idem	idem	idem	idem
C80	10mF/16V	4,7mF/40V	idem	1mF/63V	470µF/100V	220µF/250V
C90	220µF/40V	idem	idem	100µF/63V	50µF/160V	idem
CR80	2-MR751	2-MR501	4-MR501	idem	4-1N4003	idem
F90	4A, fast	3A, fast	2A, fast	1A, fast	0,5A, fast	idem
Q70	2N3053/25	idem	2N3053/50	idem	2N3053/90	2N3440
Q71	2N3055/25	idem	2N3055/50	idem	2N3055/80	DTS410
Q102	BC178B	idem	idem	2N5401	idem	idem
R54	5,6k	idem	18k	27k	47k	100k
R55	47k	68k	-	270k	-	1,2M
R70	40m	80m	idem	0,18	0,4	1,2
R90	27k 1%	8,2k 1%	12k 1%	10k 1%	12k 1%	15k 1%
R92	1,8k 1%	2,2k 1%	4,7k 1%	10k 1%	18k 1%	2//68k 1%
R95	270	2,2k	3,3k	8,2k	15k	56k
R102	270	560	idem	1,5k	3,3k	6,8k
R103	8,2k	idem	12k	33k	120k	idem
R1100	5k	10k	idem	idem	20k	idem
T10	T273	T274	idem	T275	T276	idem

Valid for units with PCB no M10 5320.

PART NO --	SCALE --	ØLTRONIX	NAME COMPONENTS LIST
MTRL NO --			FAMILY STP18 MODEL all A-vers.
SURF. TREAT. --		[X] AB [ ] BV [ ] AG [ ] GmbH	DRWG NO 281 — 74 — 1A
DRAWN DATE 1977-03-14 SIGN CAS	FREEZE DATE 1977-03-14 SIGN		



MODEL	T 10	TRANSFORMER TAPS	I S (A)	TRANSFORMER TAPS ON MB 8-1,6
MB 5/6 2,5	T 273	See figure	0,18	
MB 8 1,6	T 274	"		
MB 15 1,3	"	7,8-9,10	0,20	
MB 32 - 0,6	T 275	7-8	0,20	
MB 60 - 0,3	T 276	7-9 8-10	0,18	
MB 120 - 0,14	"	7,8-9,10	0,18	CR 80 a-b 2-MR 501

N.B. ALL RESISTOR - VALUES IN OHMS UNLESS OTHERWISE SPEC.
ALL CAPACITOR VALUES IN µ F/V UNLESS OTHERWISE SPEC.
* SEE COMPONENTS LIST 281-74-2A

PART NO	SCALE	OLTRONIX	NAME CIRCUIT DIAGRAM
M. RL NO			All models version B
SURF. TREAT		X A3 / AG — 8V / GmbH	FAMILY STABPAC MODEL 18
DRAWN DATE 77.02.18	S'QK DA/BB	FREEZE DATE 770303	S'QN 5c	DRWG NO 281 - 73 - 2

COMP. \ MODEL	MB5/6-2,5	MB8-1,6	MB15-1,3	MB32-0,6	MB60-0,3	MB120-0,14
C40a	470µF/40V	220µF/40V	idem	idem	idem	idem
C80	10mF/16V	4,7mF/40V	idem	1mF/63V	470µF/100V	220µF/250V
C90	470µF/40V	220µF/40V	idem	100µF/63V	47µF/160V	idem
CR80	2-MR751	2-MR501	4-MR501	idem	4-1N4003	idem
F90	4A, fast	3A, fast	2A, fast	1A, fast	0,5A, fast	idem
Q70	2N3053/25	idem	2N3053/50	idem	2N3053/90	2N3440
Q71	2N3055/25	idem	2N3055/50	idem	2N3055/80	DTS410
Q100	BC178B	idem	idem	2N5401	idem	idem
R54	5,6k 1%	7,68k 1%	15k 1%	33k 1%	56k 1%	107k 1%
R55	-	-	-	-	-	-
R70	54m	84m	104m	0,22	0,4	1,0
R90	20k 1%	7,68k 1%	10k 1%	8,87k 1%	10k 1%	13k 1%
R92	1,8k 1%	2,2k 1%	4,7k 1%	10k 1%	18k 1%	2//68k 1% 1/2W
R95	270	1,5k	3,3k 1/4W	8,2k 1/4W	27k	56k 1/2W
R98	-	-	-	-	-	-
R103	5,6k 1%	8,87k 1%	43,2k 1%	107k 1%	220k 1%	470k 1%
R106	100	150	270	560	1,2k	2,7k
SCR100	2N4441	(2N4441)	idem	idem	2N4442	idem
T10	T273	T274	idem	T275	T276	idem

Valid for units with PCB no M10 5716.

PART NO -- / SCALE --	ØLTRONIX	NAME COMPONENTS LIST	
MTRL NO --		FAMILY STP18	MODEL all B-vers.
SURF. TREAT. --	[X] AB [ ] BV [ ] AG [ ] GmbH	DRWG NO 221 74 — 2A	
DRAWN DATE 1977-03-14 SIGN CAS / FREEZE DATE 1977-03-14 SIGN SC			

MAIN VOLTAGE TAP-CHANGING

a) Disconnect the power supply from the mains.

b) Remove the two upper screws on the front panel and the two fixing screws for the upper extrusion.

c) Remove the side covers.

d) Move the soldered wire to the new position as indicated in the figure below.

e) Assemble the power supply and change on the sticker at the rear the voltage to the new value.

1977-03-28

MASTER-SLAVE OPERATION

Modification to slave-unit

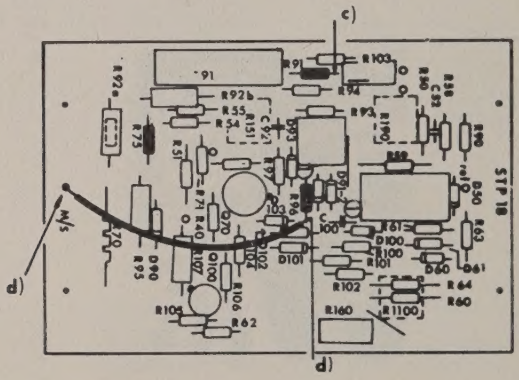
a) Disconnect the power supply from the mains.

b) Remove the front panel and the printed circuit board.

c) Remove one end of R91 and put an insulating sleeve over the free end.

d) Unsolder right hand side of R96 and connect the free end with an insulated wire to the unused hole at R75 (M/S), see figure below.

e) Assemble the power supply.



5-year guarantee

We warrant each instrument manufactured by us, and sold by us or our authorized agents, to be free from defect in material and workmanship and that it will perform within applicable specifications for a period of five years after original shipment. Our obligations under this guarantee are limited to repairing or replacing any instruments or parts thereof, which shall, within 5 years after delivery to the original purchaser, be returned to us with transportation charges prepaid, prove after our examination to be thus defective. Excluded are semiconductors, fuses, multiturn potentiometers used in resistance divider units or those components, which are not covered by a corresponding manufacturers guarantee or have been misused or accidentally damaged.

We reserve the right to discontinue instruments without notice, and to make modifications at any time without incurring any obligations to make such modifications to instruments previously sold.

MP MASTER
MA23777

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